In this paper, we extend a traditional robust data-hiding set-up with host state at the encoder to a case when a partial side information about host statistics is also available at the decoder. We demonstrate that the knowledge of host statistics at the decoder can relax the critical requirements of random binning-based methods concerning attack channel statistics at the encoder. We also analyze performance improvement of some known data-hiding methods showing that they are particular cases of the generalized set-up. Finally, we consider some related open research issues and future possible extensions.